USING BIG DATA IN BUSINESS MANAGEMENT

Mariana IATAGAN[1], Raluca ZORZOLIU[1], Elena GURGU [1]
[1]Spiru Haret University, Faculty of Economic Sciences, Bucharest, 46 G Fabricii Street, District 6, Bucharest, Romania, Tel./Fax: +40213169793, Email: se_iataganm@spiruharet.ro, se_zorzoliur@spiruharet.ro, se_egurgu@spiruharet.ro

Abstract
Digitalization is fundamentally changing companies and other organizations, just as the business world has never seen before. Changes also take place on the financial and accounting side of a company. Future digital advancements are a necessity because providers use this type of systems. The use of new technologies in business management is expected especially in terms of document recognition, data exchange, receipt and payment transactions, communication, excel replacement, text recognition. Big Data is becoming an indispensable resource for many organizations. Digitalization is fundamentally changing companies and other organizations, just as the business world has never seen before. The term Big Data has evolved in a flash to take into account the rapidly expanding quantities of digital information systems that are generated, the hard work of creating that information that can be analyzed, and the actual use of that data as capital to increase efficiency, create and enable innovation, and improve decision-making.

Keywords: *BIG DATA, technologies; business management; digitalization.*

JEL Classification: M2, M15

Introduction

Big Data is becoming an indispensable resource for many organizations.

Monitoring the flows within a business is especially important, therefore, Big Data supports this activity with alerts received in real time from smart meters, database events and log data, inconsistencies between consumption and billing, changes in consumption patterns compared to historical levels and processes associated with investigating the level of security and questionable services.

Compared to traditional analytical tools, the Big Data concept introduces changes within four dimensions: (1) data types, (2) the speed of their accumulation, (3) their volume, and (4) the quality of the data. With the release of the Web 2.0 environment, much of the valuable data for businesses is generated outside the organization, by consumers and generally Web users.

Adding value by using the potential of Big Data is still in its emerging phase, but it represents a paradigm shift that any business must consider.

Typology of the Big Data Business Model

Type	Examples of functions	Dependencies
Data users	Using data to inform strategic decisions; data development in products	Depends on providers for raw data and facilitators for infrastructure and skills
Data providers	Collection of primary data; aggregation and packaging of data for sale	It depends on facilitators for infrastructure and skills and on users both as clients and as data sources
Data facilitators	Providing infrastructure; consultancy; outsourced analysis	It depends on the users and suppliers as customers

Source: O tipologie a modelelor de afaceri cu Big Data - Telework

The solution offered by using Big Data sets helps businesses better manage their data flows with high volume, high variety and high speed and turn this data into profit-generating information. Big Data researchers unanimously agree that all Big Data systems have the following defining characteristics for their data: volume, variety, velocity, veracity, variability, volatility, viscosity, visualization, and value. We must mention that only the first "four Vs", if they have "high" values, define Big Data, the rest of the "six Vs" are found on any kind of data.

Since the "four V's" are considered defining for this concept, it is appropriate to detail the significance of these characteristics:

1. Volume: The increase in data volumes in enterprise systems is caused by the volume of transactions and other traditional types of data, as well as by new types of data. Too much data is a storage problem, but too much data also has a big impact on the complexity of data analysis;

2. Speed: refers both to the speed with which the data is produced and to the speed with which the data must be processed in order to meet the demand. This involves data flows, the creation of structured records, and the availability for access and delivery.

3. Variety: IT leaders have always had a problem turning large volumes of transactional information into decisions. The variety includes tabular data (databases), hierarchical data, documents, XML, emails, blogs, instant messages, click streams, log files, metering data, still images, audio,

4. Truthfulness: refers to how reliable or questionable the data is.

In anticipation of Big Data opportunities, companies from all industrial backgrounds temporarily collect and store a huge amount of operational, public, commercial or social data.

1.BIG DATA integration issues

BIG DATA integration issues include the variety of data sources, the quality of the data to be integrated, and the visualization of data.

A blockchain is a list of ever-growing data, called blocks, that are linked and secured with the help of cryptography. As a data structure, a blockchain is a simple chained list in which the links between elements are made by hash. Thus, each block usually contains a link to a previous block (a hash of the previous block), a timestamp, and the transaction data. By design, blockchains are resistant to data modification.

The blockchain is "a transparent and distributed ledger that can record transactions between two parties efficiently, verifiable and permanently." To be used as a distributed ledger, a blockchain is usually managed by a peer-to-peer collective network that adheres to a protocol for validating new blocks.

Once recorded, the data in any data block can no longer be changed without altering the blocks that follow, which requires the majority consent of the participants in the network.

Based on the Blockchain system, the first and most popular cryptocurrency at the time, Bintcoin, was created in 2009 by the Japanese Satoshi Nakamoto, whose identity to date is not known.
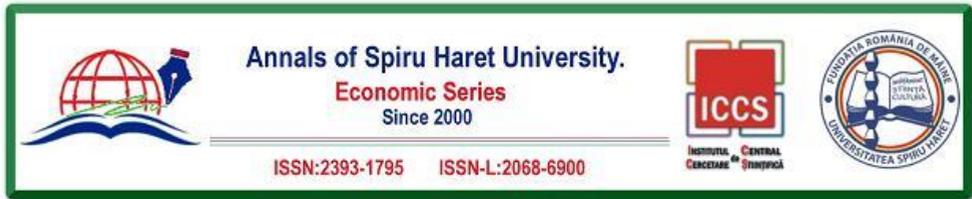
Issue 2/2022

De facto, this and is the main objective of Bitcoin and the Blockchain system, maintaining anonymity.

In addition to this, Bitcoin ensures the protection of investments, their free transfer without the participation of third parties and in the absence of any regulations or constraints.

All of the above mentioned is obtained thanks to the decentralized system on which Bitcoin is based, which means the lack of a central element / a third-party segment that makes all payments (transactions), the transfer being made directly between 2 users of the system. The transactions constituting the transfer are included in blockchains that form a common public ledger for the entire Bitcoin network.

Thus, the transaction itself and its value are transparent, but the identity of the participants in the transaction and their wallets remain unknown / hidden due to encryption techniques that use the methodology of public keys and private keys for encoding and decoding.

Bitcoin Blockchain is just a branch in which the blockchain can be used. The Ethereum blockchain was developed by Vitalik Buterin.

This blockchain has some amazing capabilities. One of them is that you can build smart contracts.

Blockchain can also be used by merchants to implement loyalty programs aimed at its customers. Such a system can reduce the costs of managing a customer database and guarantee secure transactions by customers who make use of loyalty points or the benefits offered to them.

Regardless of the field in which it is used, Blockchain technology is an excellent method of transferring sensitive data between people between whom there is not necessarily a relationship of trust, but also a variant of securely storing valuable information, without the risk of it being compromised. Thus, Blockchain is used for storing medical information about patients, digital ID cards, transactions of copyright-protected works, management of contracts and official documents, and much more.

Blockchain wallet can be considered an equivalent of a bank account, as it allows the storage, receipt or sending of cryptocurrencies. However, cryptocurrencies are not stored in such a wallet, but the information that confirms their ownership by the user.

2. Depending on how the storage of the private key is carried out

Wallets on the desktop - downloaded and installed on a computer, these wallets can only be used from that device. They can provide greater safety against cyberattacks, but only if the device on which they are installed is well secured.

Wallets on the mobile - are the wallets that are downloaded to the mobile phone. They offer greater accessibility than those on the desktop, but they can be vulnerable to cyberattacks.

Online wallets - they are not installed on the owner's device, but work in a cloud system, and private keys are stored in a server owned by a third party. They are fast, easy to use and safe, but they involve management fees.

Hardware wallets - are similar to online wallets, with the difference that in their case the private key is stored on a device specially designed for this purpose, used every time it is desired to make a transaction. Although they are among the safest types of Blockchain wallets, they are also the most expensive.

Paper wallets - involve printing on a paper the private key and a QR code. They are a good choice of long-term storage of cryptocurrencies, and the only risk is that of destroying or losing the paper on which the Blockchain login information is printed.

Understanding the principle of operation of Blockchain technology and knowing its benefits can create new opportunities for development for any company and optimize current activities. With the help of quality services provided by specialists in the field, Blockchain can open new horizons and significantly improve the operational processes of any entity.

For the designation of "virtual currencies" are sometimes used terms such as ►"crypto-assets", "crypto-tools", in a generic sense, or "cryptocurrencies", "virtual assets", ►"virtual tokens", etc. There are opinions that "cryptocurrency" does not have a perfect synonymy with "virtual currency".

Sometimes it is preferred to use the notion of "crypto-assets" instead of ►"cryptocurrency", starting from the finding that the latter do not generally perform the functions that define the notion of "currency", "currency", "ban": cryptocurrencies do not act as a means of exchange, do not have the role of storing value, given their volatility and are not used as a unit of account.

Sometimes the term "token" is preferred, instead of "virtual currency", as being more neutral and not entailing the implicit legitimacy of the "currency"/"currency"; it is a broad term, which includes many virtual assets and which can be defined in opposition to account assets, given that the system based on accounts starts from

the possibility of verifying the identity of the holder, while those that use tokens are based on the ability to verify the validity of the token itself.

A common feature in the Member States of the European Union lies in the uncertainties surrounding the legal classification of virtual currencies: they are not considered to constitute legal currencies or money, but as means of exchange; they are intangible/intangible assets and may constitute alternative investments with specific risks, inherently associated with investment risks specific to the financial and banking sector; they are intangible/intangible assets and may constitute alternative investments with specific risks, inherently associated with investment risks specific to the financial and banking sector; they constitute units of account and, consequently, are financial instruments; form of financial asset, etc. Therefore, from a terminological point of view, the use of the term 'virtual assets' is sometimes preferred, in so far as those instruments do not constitute 'currency' in the established sense.

In all the Member States of the European Union, the movement of virtual currencies is permitted, but in many of those countries the financial sector supervisors and/or the central banks have constantly issued warnings, informing the public of the absence of any kind of regulation or supervision, of the risks involved in operations with such virtual currencies and of the fact that virtual currencies do not enjoy a well-defined and accepted legal status at the level of the European Union and the international payment system. The warnings in question followed or accompanied similar warnings issued by the three ESAs2 .

So far, three Member States of the European Union have adopted specific (even partial) legislation regulating virtual currencies, distributed ledger technology (blockchain) and the initial supply of "tokens"/currencies: France, Malta and the United Kingdom (more specifically Gibraltar, a British territory). In various Member States, reflections are taking place on the possibility of specific regulatory interventions (e.g. Austria, France, Latvia, Ireland, the United Kingdom, Spain, the Netherlands).

Virtual currencies should not be confused with electronic money as defined in point (2) of Article 2 of Directive 2009/110/EC of the European Parliament and of the Council with the broader concept of 'funds' as defined in point (25) of Article 4 of Directive (EU) 2015/2366 of the European Parliament and of the Council, nor with the monetary value stored in exempted instruments as provided for in points (k) and (l) of Article 3 of Directive (EU) 2015/236634, or with gaming coins, which may be used exclusively in a specific gaming environment. While virtual

currencies can frequently be used as a means of payment, they could also be used for other purposes and acquire more varied uses, for example, as a means of exchange, as investments, as value storage products or for uses in online casinos. The objective of this Directive is to cover all possible uses of virtual currencies.

The National Bank of Romania (NBR) has constantly stated in recent years that it has no attributions in the supervision of virtual currency schemes and virtual currencies, but in order to warn the population about the potential risks related to the use of such coins, the NBR issued, on March 11, 2015, a communiqué in which it stressed that "virtual currency is not a national currency and no currency, and its acceptance for payment is not legally binding." The NBR shows that at European level, no authorities have been designated to regulate and supervise virtual currency schemes, but public warnings have been issued about the risks associated with the use of these virtual currencies. The National Bank of Romania also specified that at European level it is intended to regulate virtual currencies from the perspective of money laundering and terrorist financing, by amending the Directive of the European Parliament and of the Council (EU) 2015/849 on the prevention of the use of the financial system for the purpose of money laundering or terrorist financing.

Digitalization is fundamentally changing companies and other organizations, just as the business world has never seen before. Changes also take place on the financial and accounting side of a company.

Future digital advancements are a necessity because providers use this type of systems. The use of new technologies in business management is expected especially in terms of document recognition, data exchange, receipt and payment transactions, communication, excel replacement, text recognition.

3. Big Data -an indispensable resource for organizations

Monitoring the flows within a business is especially important, therefore, Big Data supports this activity with alerts received in real time from smart meters, database events and log data, mismatches between consumption and billing, changes in consumption patterns compared to historical levels, and processes associated with investigating the level of security and questionable services. Then, by integrating these multiple flows in a way that allows real-time analysis and comparison, companies provide employees with the tools to identify fraud faster, protecting infrastructure and revenue.

Issue 2/2022

Table of advantages and disadvantages of using BIG DATA in business

ADVANTAGES	DISADVANTAGES
cloud-based solution related to data storage and transmission	increased education in technology and analytical methods
large data solution focused on control and monitoring	mandating the provision of the data standard
solution for supply chain and risk management systems	changes in the timing and frequency of checks
smart grid and power system solution	
re-examination of concepts such as materiality and independence	

Source: CBR-Challenges-and-trends-for-the-incorporation-of-big-data-in-the-accounting-profession-a84.pdf

Monitoring the flows within a business is especially important, therefore, Big Data supports this activity with alerts received in real time from smart meters, database events and log data, inconsistencies between consumption and billing, changes in consumption patterns compared to historical levels and processes associated with investigating the level of security and questionable services.

Then, by integrating these multiple streams in a way that allows real-time analysis and comparison, companies provide employees with the tools to identify fraud faster, protecting infrastructure and revenue.

As the world enters its deepest global recession since the Great Depression, the connection of health needs to social, economic and environmental well-being must be achieved, linking the present with the future. The long-term social and economic impact of this crisis will be profound.

Conclusion

Being an interdisciplinary topic, Big Data has the potential to attract the attention of the academic and professional communities more and more, being able to be the subject of valuable future research at any time.

Big Data becomes an indispensable resource for many organizations and has the potential to be an extremely valuable resource for professionals.

The increased use of technology is often accompanied by the fear that people may be left without jobs. Not all experts see in this case a danger, although the era

in which we live demands more and more computer skills in addition to professional ones.

Romania needs a change in the present development paradigm to face the challenges of the XXI century.

We are living in a period marked by the process of globalisation, the increase in inequalities and the aggravation of environmental problems. Sustainable Development is the solution.

Given the complexity of the economic and social life, in the states with market economy, the conjuncture with global effects – such as the pandemic, the war – but also for a good functioning of the society, the importance of the capacity of cooperation and public-private partnership and coordination in the public sphere is detached.

Romania, as well as the EU, must redesign their medium- and long-term priorities to achieve the objectives of the 2030 Agenda for Sustainable Development, adopted at the United Nations Summit in September 2015. This is a sure-fire way to achieve a better future for future generations.

The global action plan, which Romania chooses to support in the coming years, is aimed at improving poverty, combating inequalities, social injustice and protecting the planet by 2030.

References
[1] Adriana Alexandru, Dora Coardoș, Big Data – Concepte, arhitecturi și tehnologii, 2017, București
[2] Aspecte de actualitate privind reglementarea tehnologiei registrelor distribuite și a monedelor virtuale în legislația statelor membre ale Uniunii Europene, studiu, Departamentul de Studii Parlamentare și Politici UE Direcția pentru Uniunea Europeană, 2019
[3] Autoritatea Europeană pentru Valori Mobiliare și Piețe, Autoritatea Bancară Europeană, Autoritatea Europeană de Asigurări și Pensii Ocupaționale.
[4] Domenii în care mai poate fi utilizată tehnologia blockchain, Nr. 56 | Martie 2018 | Jurnalul de Afaceri
[5] George Zlati, Tehnologia blockchain, monedele virtuale și dreptul penal, Revista Penalmente, nr 1, 2021, www.revista.penalmente.ro
[6] Mihaela Gabriela Belu, Application of Blockchain in International Trade: An Overview, The Romanian Economic Journal, nr 71, martie 2019

Issue 2/2022

[7] Mihaela Rusanovschi, Gabriela Pociumbanu, Iulian Paniș, Dumitru Bobeico , Blockchain. Tehnologia viitorului , Technical University of Moldova

[8] Strategia privind Digitalizarea Educației din România, Ministerul Educației și Cercetării, 2021

[9] Studiul privind efectele utilizării platformelor BigData asupra concurenței, Consiliul Concurenței, Februarie 2021

[10] Peste 70% dintre companiile est-europene implementează metode digitale precum Big Data, Smart Dashboards sau Advanced Analytics - Arena IT

[11] Postul Consiliului: Opt moduri in care Big Data si AI schimba lumea afacerilor - Bcr Club Antreprenori

[12] Big Data Trends in 2022: The Future of Big Data | Datamation, 2022

[13] CBR-Challenges-and-trends-for-the-incorporation-of-big-data-in-the-accounting-profession-a84.pdf

[14] Cum sa profitati de Big Data in sectorul financiar - Finantistii

[15] 04-ART2-RRIA-1-2017-Alexandru-Coardos-big-data-2-1 (1).pdf

[16] 17 Big Data Applications & Examples | Built In

[17] 5 Beneficii: Avantajele competitive ale Big Data în afaceri - NewGenApps

[18] How Big Data Helps in the Fight Against Climate Change - insideBIGDATA

[19] http://docplayer.ro/204462768-Tehnologia-blockchain.html

[20] https://www.edupedu.ro/intre-roboti-inteligenta-artificiala-si-blockchain-profesorul-nu-va-fi-desfiintat-ci-rezista-in-rol-central-raportul-oecd-digital-education-outlook-2021-despre-tehnologiile-inteligente-care-tran/

[21] https://www.undp.org/content/undp/en/home/news-centre/news/2020/UN_sets_out_COVID_social_and_economic_recovery_plan.html

[22] https://www.wto.org/english/news_e/pres20_e/pr855_e.htm